



Dan Skopec  
Acting Secretary  
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## Department of Toxic Substances Control

Maureen F. Gorsen, Director  
8800 Cal Center Drive  
Sacramento, California 95826-3200



Arnold Schwarzenegger  
Governor

May 31, 2006

Ms. Gail Youngblood  
Fort Ord BRAC Environmental Coordinator  
Department of the Army  
Environmental and Natural Resources  
Post Office Box 5004  
Presidio of Monterey, California 93944-5004

### RESPONSE TO PROPOSED REVISIONS TO FINAL OPERABLE UNIT CARBON TETRACHLORIDE PLUME (OUCTP) REMEDIAL INVESTIGATION/FEASIBILITY STUDY AT FORMER FORT ORD, CALIFORNIA

Dear Ms. Youngblood:

The Department of Toxic Substances Control (DTSC) has reviewed the electronic mail correspondence regarding the proposed revisions to the *"Final Operable Unit Carbon Tetrachloride Plume (OUCTP) Remedial Investigation/Feasibility Study (RI/FS) Report"* dated May 1, 2005. The proposed revisions were provided by the Department of the Army, Ford Ord Office, Army Base Realignment and Closure, Monterey, California for a courtesy DTSC review prior to finalization of the Final OUCTP RI/FS Report.

Comments on the proposed revisions are provided in the attached memorandum by Ms. Tracy Taras, Ph.D. Staff Toxicologist of DTSC's Human and Ecological Risk Division (HERD), for consideration prior to finalizing the above-referenced document. With respect to HERD's comment 4.1, the Office of Military Facilities (OMF) concurs with the Army that the entire list of chemicals of potential concern (COPCs) do not need to be added to the FS summary table and Proposed Plan, because they are listed in the RI Human Health Risk Assessment (HHRA). Regarding Comment 4.3, OMF concurs with the Army that a quantitative risk reduction evaluation is not required because appropriate risk reduction is assumed to be obtained if the cleanup goals are achieved, although chloroform should be monitored during the insitu enhanced bioremediation remedy implementation in the A-Aquifer.

Ms. Gail Youngblood  
May 31, 2006  
Page 2

If you have any questions, please contact me at (916) 255-6403.

Sincerely,

A handwritten signature in dark ink, appearing to read "Susan Goss", with a long horizontal flourish extending to the right.

Susan Goss, P.G., C.H.G.  
Remedial Project Manager  
Office of Military Facilities

Attachment:

cc: Mr. Martin Hausladen  
United States Environmental Protection Agency  
Region IX  
75 Hawthorne Street  
San Francisco, California 94105

Mr. Grant Himebaugh  
Regional Water Quality Control Board  
Central Coast Region  
895 Aerovista Place, Suite 101  
San Luis Obispo, California 93401-7906

Ms. Tracy Taras, Ph.D.  
Staff Toxicologist  
Human and Ecological Risk Division  
Department of Toxic Substances Control  
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TO: Susan Goss  
Office of Military Facilities (OMF)  
8800 Cal Center Drive  
Sacramento, CA 95826-3200

FROM: Tracy L. Taras, Ph.D.  
Staff Toxicologist  
Human and Ecological Risk Division (HERD)   
8810 Cal Center Drive, 2<sup>nd</sup> Floor  
Sacramento, CA 95826-3200

DATE: May 2, 2006

SUBJECT: DRAFT FINAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY,  
OPERABLE UNIT CARBON TETRACHLORIDE PLUME GROUNDWATER,  
FORMER FORT ORD, CALIFORNIA

PCA: 14740                      Site: 200040-47

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### Documents Reviewed:

1. Revised Executive Summary - redline/strikeout
2. New Volume V - Comments and Responses, text
3. New Volume V - Comments and Responses, Table 1
4. New Volume V - Comments and Responses, Figure 1
5. New Volume V - Comments and Responses, Appendix A
6. Volume I - Appendix G cover page
7. Volume III - Appendix A cover page

The seven documents reviewed in this memorandum are related to the Draft Operable Unit Carbon Tetrachloride Plume (OUCTP), Groundwater Remedial Investigation/Feasibility Study (RI/FS) Document for Former Fort Ord. The documents were received via email communication from OMF on 5/1/2006.

**Documents Previously Reviewed:** In a June 29, 2005 memorandum, HERD reviewed and provided comments related to the human health risk assessment (HHRA) portion of the Draft OUCTP Groundwater RI/FS Document prepared by MACTEC Engineering and Consulting, Inc. In a December 13, 2005 memorandum, HERD reviewed the Draft Final OUCTP RI/FS dated October 28, 2005. In a January 11, 2006 memorandum,

HERD reviewed the Draft Superfund Proposed Plan: Remedial Action Proposed for Operable Unit Carbon Tetrachloride Plume Groundwater. Subsequent to HERD's January 11, 2006 memorandum, HERD received a copy of the Draft Final Proposed Plan document. Per OMF's recommendation, rather than preparing a formal review memorandum for the revised document, HERD submitted review comments to OMF on the revised document in an email communication dated February 14, 2006. Finally, in an April 18, 2006 memorandum, HERD commented on 1) the Army's "Supporting Data for Indoor Air Pathway Evaluation, Operable Unit Carbon Tetrachloride Plume Groundwater at Former Fort Ord, California" submission, an email communication entitled "Responses to DTSC's further comments, OU-CTP RI/FS" and the three attached indoor air modeling files, and the "Draft Final Proposed Plan: Remedial Action is Planned for Operable Unit Carbon Tetrachloride Plume Groundwater at Former Fort Ord, California" document.

## COMMENTS

1. Revised Executive Summary - Redline/Strikeout dated April 21, 2006 -Exposure Assessment (Page 7): The revised text states that exposure of residents to contaminants resulting from the volatilization of volatile contaminants during showering and bathing, cooking, and other household uses of contaminated groundwater was evaluated in the HHRA. The text should be updated to clarify that only inhalation exposure to volatiles during showering was quantitatively evaluated in the HHRA.
2. New Volume V - Comments and Responses, Text Dated May 2006
  - A. Section 1.0 Introduction: Per discussion with OMF, HERD's comments on the draft Proposed Plan document are not part of the publicly available administrative record. As such, the Army's "Responses and Comments" provides a brief explanation of HERD's concerns regarding the indoor air evaluation contained in the Draft Final RI/FS document. For clarity, the text should be revised to state that HERD's concerns related to the lack of evaluation of vapor intrusion to indoor air from groundwater downgradient of the suspected source area in the Draft Final RI/FS HHRA. The "New Volume V – Comments and Responses" and "Revised Executive Summary" (which was updated to include risk from the indoor air evaluation downgradient of the suspected source area) address this issue.
  - B. Introduction – Indoor Air Sampling: The text on Page 2 contains an important typographical error. The range of carbon tetrachloride concentrations measured in outdoor air during the Fort Ord ambient air monitoring program should be shown as ranging from 0.067 ppbv and 0.13 ppbv (not 0.013 ppbv).
  - C. Introduction – Summary (Page 3)
    - i. The text states that the results of the soil gas and indoor air samples indicate that volatilization of carbon tetrachloride is not occurring above the OUCTP

groundwater plume and the current level of characterization is complete. Please note that the indoor air samples and majority of soil gas samples were collected from the suspected source area, rather than downgradient where the hot spots of the groundwater plume are located. As such, this data provides only limited information regarding volatilization from the downgradient groundwater plume. However, because the Army has now evaluated the indoor air pathway from downgradient groundwater using the Johnson and Ettinger (J&E) model and updated the cumulative risk estimates accordingly, HERD finds the updated indoor air evaluation to be acceptable.

- ii. The text states that the J&E model indicates that if carbon tetrachloride is volatilizing over the plume, the estimated risks are within the acceptable risk management range, even assuming a 30 year exposure. If the Army chooses to compare site risks to the risk management range, it is important that cumulative total risks be presented and used for the comparison. Inclusion of cumulative total risk estimates (across all complete exposure pathways) in the text of the Responses to Comments will also document how the cumulative total risk estimates presented in the Executive Summary were calculated. Finally, while reference to the  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$  risk management range can be included, the text should also note that the risk estimates exceed the  $1 \times 10^{-6}$  point of departure for risk management decisions.
- iii. Section 2.3 – Responses to Comments for HERD’s Memorandum dated December 13, 2005.
  - a. Comment 4.1: The Army’s response appears to refer to the Proposed Plan document rather than the FS Report. In order to provide more complete transparency between the RI Report HHRA and the FS and Proposed Plan documents, HERD recommends that the FS summary table and Proposed Plan be updated to list all chemicals of potential concern (COPCs) quantitatively evaluated in the risk assessment.
  - b. Comment 4.3: HERD defers to OMF regarding the need for an evaluation of the quantitative risk reduction, given that maximum contaminant levels (MCLs) have been chosen as the aquifer cleanup levels. HERD reiterates however that concentrations of chloroform (for which there is no MCL) should be monitored in future remedial efforts.

## CONCLUSIONS

HERD has reviewed the Army’s submissions related to the Draft Final RI/FS Report for OUCTP. HERD appreciates the Army’s responsiveness to our previous comments and concurs with the updated indoor air evaluation for the portion of the OU downgradient of the suspected source area. Please note however that there are specific aspects of the text which we recommend be updated prior to finalizing the document. In regard to the summary of chemicals of potential concern contained in the FS and Proposed Plan

S. Goss  
Page 4

documents, HERD recommends that all COPCs quantitatively evaluated in the HHRA be included for transparency. Furthermore, HERD defers to OMF regarding the need for an evaluation of quantitative risk reduction in the FS.

Reviewed by:

Michael J. Wade, Ph.D., DABT  
Senior Toxicologist, OMF, HERD

Handwritten signature of Brian K. Davis for MJD.

cc: R. Racca, DTSC, OMF  
D. Stralka, USEPA Region 9